

HILL LAND AND PEOPLE IN ROSS COUNTY, OHIO

A Study of Selected Areas

by  
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## FOREWORD

To augment the extensive Land Use Studies being made in Ross County, Ohio, it was considered both necessary and desirable to collect certain additional information concerning rural life in the two principal types of hill areas in the county. In these areas it was not possible to secure a true picture of conditions and their contributing factors without conducting a detailed survey and study.

A request was therefore made that assistance be granted to conduct such a survey, the results of which are set forth in the following pages. The project was sponsored cooperatively by the Ohio Agricultural Experiment Station, the United States Bureau of Agricultural Economics, and the Ohio Agricultural Extension Service. Mr. H. R. Moore, of the Department of Rural Economics of the Ohio Agricultural Experiment Station, conducted the study and has prepared the following report in accordance with the suggestions of the local Work Committee whose responsibility it has been to develop a Unified Farm Program for the county.

That the information and data hereby obtained may be useful in the furtherance of a more satisfying and constructive agricultural, economic, and social program for the residents of these and similar areas, is our sincere intent.

Signed:        Frank A. Brown  
  
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Work Committee  
of  
Ross County Land Use Committee

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## Summary

This report has been prepared at the request of the Ross County Land Use Planning Committee which, in the process of developing a unified program, encountered the need for additional information on the economic and social factors related to land use in the poor land areas of the county.

Five sample areas were selected for study, each area representative of a different combination of physical resources, economic development and social conditions.

Area I contains sufficient agricultural land to maintain farming as a principal employment. Chillicothe, six miles distant.

Area II - agriculture is limited by the low productivity of the land and outside employment is limited by the distance to any point of industrial development, Chillicothe, 17 miles distant.

Area III - the topography is rough but the number of households is increasing due to the settlement of families depending on employment in nearby Chillicothe, four miles distant.

Area IV is very rough and broken; most of the land is in timber. Outside employment is the rule; little interest is shown in part-time farming. Chillicothe, seven miles distant.

Area V is next to Area I in amount of available crop land. Part-time farming is the rule; a few full-time farmers. Upland is reverting to brush and timber. A little fair bottom land. Outside employment divided between level land to the North and Chillicothe, 10 miles distant.

Present land use.- In Area I the land is utilized as follows: crop land, 34 per cent; pasture and some idle open land, 29 per cent; brush and timber (including brush land pasture), 37 per cent. In the other four areas the crop land ranges from 15 down to 4 per cent, only enough pasture is utilized to supplement the crop land and consequently brush and timber cover from 66 to 85 per cent of the total acreage.

Potential land use.- When the land was graded in terms of potential use, based on slope, erosion, adequate fertility, etc., the calculations indicated that the crop acreage in Area I could be increased about 5 per cent without plowing any poor land and 13 per cent if some poor land were improved. In the other four areas any material increase in crop land would involve the reclamation of land of very questionable quality for crops or pasture but capable of fair to good timber production.

Crop rotation - legumes needed.- At present definite crop rotations are not closely adhered to by most farmers in any of the sample areas because of clover and grass seed failures. This is illustrated by the fact that 13 per cent of the land in all areas was in grain crops in 1939 as compared with less than one per cent in clover and alfalfa. Practically all full-time farmers recognize the problem and its solution. Part-time farmers tend to ignore it.

Volume of production.- That agriculture is on a subsistence basis in Areas II to V, inclusive, is indicated by the fact that the total volume of crops produced and livestock kept is about equal to five average sized corn belt farms containing about one-tenth as much land.

Size of land holdings.- The size of individual land holdings ranges from less than one acre to more than 300 and the land in crops from 0 to more than 200. About two-fifths of all tracts have no crop land, gardens excepted.

Small, medium and large land holdings are about equally numerous, though the small holdings contain only a fraction of the total land. E.g., 25 per cent of the land holdings average less than 20 acres and contain 1.57 per cent of the land. 27.62 per cent of the land holdings average 100 acres or more and contain 61.27 per cent of the land.

Land tenure.- Owners occupy 82 per cent of the land holdings containing 79 per cent of the land. Tenant occupancy is usually associated with poor living conditions and rapid land deterioration when the land is cropped.

Condition of buildings.- About 24 per cent of the dwellings were rated as being in good condition, 44 as fair and 32 poor. The good dwellings are usually on the better commercial farms and on tracts occupied by families with satisfactory employment in industry. Twenty-one per cent of the land holdings had no barns, 50 per cent had poor barns, 24 per cent fair and 6, good. Other buildings rate about the same as barns. A serious handicap on the returns of part-time farms is the poor housing for livestock.

Dependence on the land varies.- The degree to which individual households depend on the land for the family income ranges from 0 to 100 per cent, if the value of housing is excluded. All areas combined, 17 per cent of the households obtained less than one-fifth of their income from the land, 42 per cent obtained about one-fourth, 26 per cent from one-third to three-fourths and 20 per cent obtained three-fourths or more.

Population composition.- The population in these areas contains an abnormally high proportion of children and old people. Youth tend to go elsewhere during the years of productive employment. The birth rate is sufficiently high to give a surplus of 86 for each 100 youth needed to replace the population.

Origin of heads of households.- About half the heads of households were born in the township of present residence, 12 per cent were born in the same county, 25 per cent in some other Ohio county and 10 per cent in some other state. Length of residence in the present location corresponds roughly with the degree of dependence on agriculture. Industrial employment is associated with frequent moves.

Occupational pattern.- Of 110 gainful workers, 31 per cent were farm operators as the principal employment, 9 per cent were farm laborers mostly employed outside the areas, 25 per cent were employed in industry, 17 per cent in other occupations and professions and 18 per cent were on work relief. Fifteen persons in 14 other households were receiving pensions.

Attitudes.- One of the most important parts of this study was to determine the status of peoples' thinking about various suggested programs intended to improve the land and supply greater economic opportunity to the people. Out of 98 replies, 44 could use more lime if it were made available on satisfactory terms, 27 said "no" and 27 were indefinite. Practically the same series of replies were given on fertilizer. Use of lime and fertilizer is an accepted practice and desired by most farmers using much land. Erosion is not generally conceded to be a problem until it becomes serious which may explain why the suggestion of government payments for erosion control practices elicited only 14 "yes" answers as compared with 32 "no" and 52 indefinite replies. A good many farmers felt such a program had no application on their land. Only 17 replies were favorable to payments for forest management as compared with 31 "no" and 51 indefinite answers. Aid for reforestation was slightly less favorably received: 12 "yes", 42 "no" and 44 indefinite answers. The suggestion of aid for the development of home gardens was very unfavorably received: 4 "yes", 61 "no" and 33 indefinite answers. Households depending on industry for their livelihood are, as a whole, less interested or less well informed about land use problems than those depending on agriculture for a living. Practically all people interviewed think they know how to grow a good garden. The preponderance of "no" and indefinite replies is associated partly with a suspicion of motives and more largely with an undeveloped perspective of the things needed by the land and people and a lack of knowledge about suggested action programs dealing with land use.

#### Purpose of the Study

This study was made at the request of the Ross County Land Use Planning Committee which, in the process of developing a unified program, encountered the need for additional information on the economic and social factors related to land use in the poor land areas of the county. A statement of the general situation follows:

Ross County, Ohio, contains substantial areas of hill land in which the existing resources, as now utilized, do not supply a satisfactory living for the inhabitants. This situation is not unique in itself, being more or less typical of many communities in the Appalachian region. To say that this land is submarginal for agricultural use and should be retired to forest is an incomplete answer, for that at once raises the question: where are the people to go or what are they to do?

Continued human occupation of these poor land areas indicates that no other place has offered a better alternative opportunity. On the other hand, it is generally observed that prevailing practices do not conserve, develop or utilize the land resources in a satisfactory manner with the result that the economic basis of human support is constantly dwindling.

The entire situation calls for the establishment of a satisfactory equilibrium between land and people - something never achieved, for from pioneering days to the present, land has been denuded of its

forests, its soil and original fertility. The processes of destruction are now going on at a reduced rate for part of the land is reverting to brush and timber and the amount of crop land is small. Occasionally the second or third growth timber will be cut and the ground put to corn for a few years; but the meagre yields cause abandonment to another cycle of poor pasture - brush - timber. Let this go on and eventually an equilibrium will be established on a level too low for human subsistence. Can the human and natural resources in these areas be marshalled in such a way as to reverse present trends? What can the sustained aid of all agencies - local, state and national do to help? It may be that a formula could be developed which would establish a sustained economy and socially desirable mode of living; but such a formula is a complex matter which existing experience can only supply in fragments. This study is intended to add a few more details of information to that already available in order to show how the people in the poor land areas can be aided to secure a better living and what an appropriate land use program would need to consider under existing circumstances.

#### The Method of Study

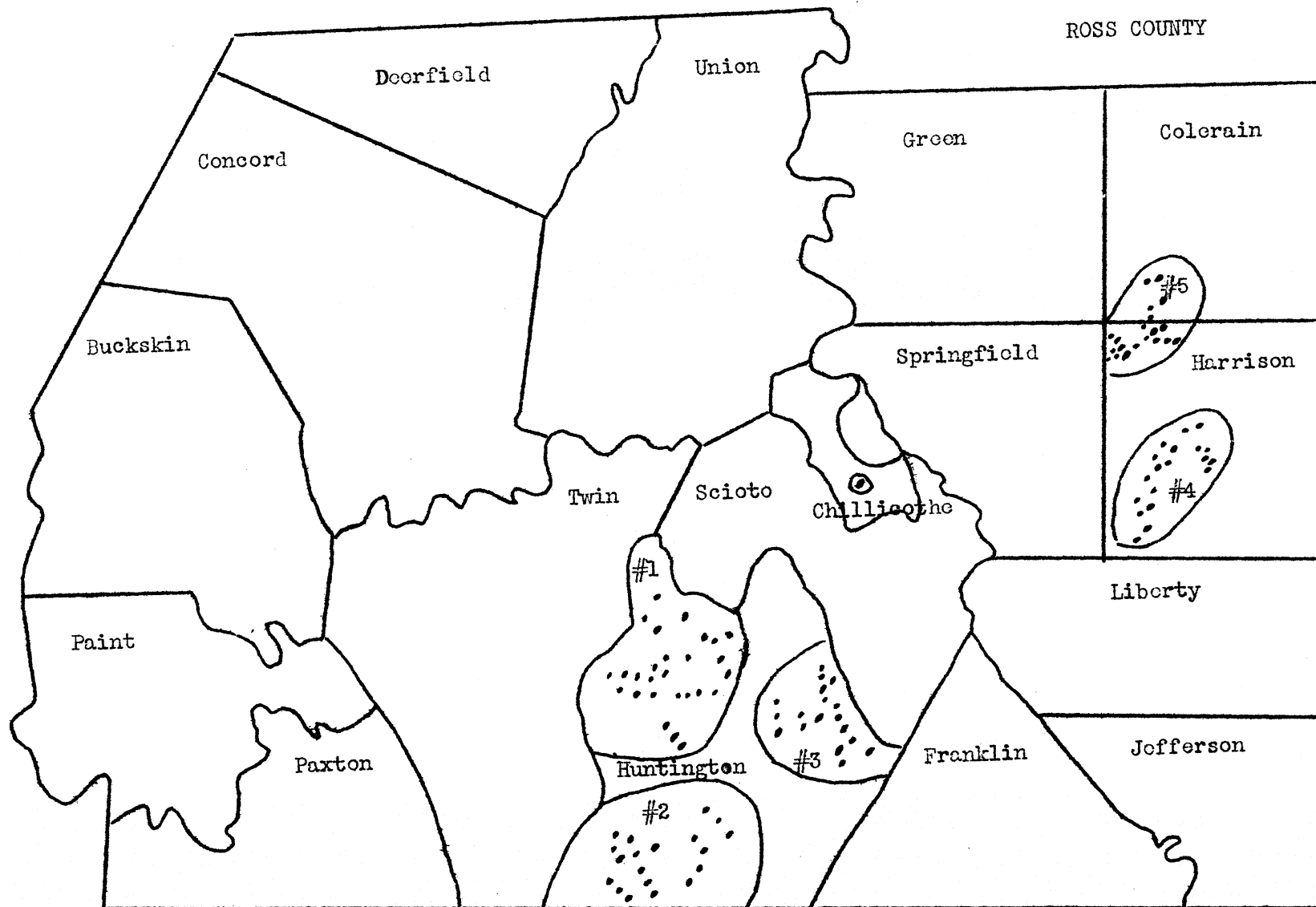
Five sample areas were selected by the Ross County Land Use Planning Committee. So far as practicable all households living within a solid block of territory were interviewed in order to get a cross section of the economic and social conditions. Data were collected to show the present pattern of land use on each land holding, potential future use, volume of crop production, livestock kept, condition of buildings, size of households, occupation of persons in each household, number of children in school, and lastly, the opinions and attitudes of the people in respect to the application of various types of governmental aid to each land holding. When possible both the head of the family and the housewife were interviewed. When the head of the family worked away from home the opinions of the housewife alone were secured in some instances. An interview with the housewife was satisfactory in most cases of full-time outside employment where little farming was done and the size of land holding was small. In some instances a return visit was found necessary to interview the head of the household.

#### General Description of the Areas Studied

The assumption is that each of the five sample areas selected for study has some distinguishing characteristics which justify some separate analyses. As a matter of background some general explanation will first be given of the location of each area, physical features and other relevant circumstances which cause each area to be considered different from the others.

Chart I.- Ross County: Location of Sample Areas

Dots indicate location of individual households interviewed





## Area I

This area was selected as representative of hill country with sufficient resources to maintain agriculture as the principal source of employment and principal type of land use. Problems exist which may merit some changes in farm practices; but farming experience has been sufficiently satisfactory in Area I to indicate that major changes in land use are not needed. Just what the needs are and the attitudes of the people are in respect to factors affecting the situation are points which it was hoped this study would help clarify.

Sample Area I, approximately two miles square, is located in the northwestern part of Huntington Township. The eastern edge is approximately six miles southwest of Chillicothe. The area was considered representative of that part of Huntington Township lying northwest of State Route 772. The area is principally an upland bounded on the west and north by Paint Creek Valley, on the east by the tributary stream, Ralston Run, and on the south by hill country of relatively lower productivity than Area I. Most of the drainage is into Ralston Run through small tributary streams which cut back some distance into the upland. The hillsides adjacent to the valleys are precipitous, rising about 300 feet to a gently rolling to rolling upland plain. Elevation above sea level varies from about 1100 feet at a point overlooking Paint Creek Valley on the west to 648 feet near the confluence of Ralston Run and Paint Creek. Nearly all the cultivated land lies on the gently rolling upland although some lies in the Ralston Run Valley. Several upland fields lie almost level. Relatively little of the upland is wooded but most of the steep hillsides are covered with brush and timber which constantly encroach on the open land pasture. Several narrow stream valleys tributary to Ralston Run cut back into the upland. The principal roads serving the area lead up these valleys and climb the adjacent hillsides. These valleys ending in narrow wooded ravines tend to break the upland area into several little neighborhoods but the degree of isolation is not serious. Most farm families in the area live on the upland. On the other hand, the narrow valleys afford frequent building sites utilized by families depending only to a limited extent or not at all on the land for a living.

A marked variation in soil productivity exists in the area. Also the size of holding varies from less than one acre to more than three hundred and the amount of crop land from nothing to more than two hundred. Most of the small and medium sized holdings are on the poorer land.

Corn is the principal crop followed by wheat and one or more years of hay. Clover failures are frequent unless the land is limed. Timothy catches are uncertain. As a result wheat may be followed by corn instead of hay and sometimes corn follows corn. At least two farms maintain herds of beef cattle. Dairying on a small scale is common. The bulk of the corn is used in hog production. The poultry enterprise is small on most farms. Two commercial orchards are located in this part of the township. Little good pasture is produced; some is fair, but in general, broom sedge and poverty grass predominate.

As compared with the other areas, Area I is distinguished by the variation of conditions ranging from corn belt agriculture down to the lowest grade of subsistence farming.

## Area II

This area is located in the southwestern part of Huntington Township, south and east of State Route 772. The area studied lies south and southeast of Summit Hill village and is within the limits of 14 and 17 miles from Chillicothe. Flat top hills are still a feature of the landscape modified by some narrow ridges and knobs. Due to the low productivity of the soil, much of the upland even when gently rolling has reverted to brush and timber. The sample area is drained by Peepee Creek and the Left Fork of Crooked Creek but similar terrain extends to the east beyond Crooked Creek and south to include practically all of Pebble Township, Pike County. In the sample area elevations above sea level vary from 1340 feet on Chostnut Oak Knob southeast of Summit Hill Village to 900 feet two miles south in the valley. A substantial portion of the rolling land on the flat top hills ranges between 1000 and 1100 feet in elevation. The side hills adjacent to the valleys are not as steep as in Area I.

Much of the land now cultivated is in the valleys or on the more fertile slopes adjacent thereto; but some fields and farms are located on the upland. The principal roads follow the stream valleys where most of the houses are located. The principal crop is corn. Practically no wheat is grown. Occasionally a farmer takes a gamble on growing buckwheat. Clover is almost certain to fail and even a catch of timothy is extremely uncertain. A little soybean hay is produced. As a general rule, corn fodder supplies the roughage for winter feeding. There is little open land pasture and this is usually poverty grass and broom sedge. The land is too acid to grow much white clover and Kentucky blue grass. A little Canadian blue grass and red top are found in favorable spots. Several farmers are experimenting with lespedeza but this has not provided much pasture so far. Few families produce much for sale: a few hogs, a little cream, an occasional calf and a few eggs. An occasional farm in the general area has expanded the dairy enterprise. Most of the cash income is derived from outside employment. Two commercial apple orchards are located in the area but neither past experience nor present outlook encourages expansion or even maintenance of existing production.

Agriculture apparently never passed a rather primitive stage of development in this area due to the unproductive character of the soil. So long as some virgin timber existed for sale and new land was available for crops the resources maintained a self-sufficient mode of living with frugal standards. The present resources of second growth timber, depleted crop land and poor pasture are inadequate support for the present population. This area is unique in that the topographical features are not so much a limiting factor as the low productivity of the soil. Another handicap is that the distance from any center of industry discourages outside employment.

### Area III

Area III in the northeastern corner of Huntington Township was taken as representative of a rather densely settled poor land area where relatively little dependence is on agriculture. The area sampled was three to four miles southwest of Chillicothe and south of State Route 772. The topography is rougher than in Area II. Elevations in the general vicinity range from 1240 feet down to 656 feet at the junction of Route 772 and the secondary road leading south through the sample area.

Little land is cultivated for nearly all families plan to get the bulk of their income from outside employment, principally in Chillicothe. Most of the holdings are small, some being merely building lots; but several range up to 30 acres or more and the owners engage or plan to engage in part-time farming.

Because industrial employment is the objective of so many residents in Area III a very limited amount of land is actually utilized and most of this is along the roads close to the houses. Brush land is being cleared on a few tracts with the intention of increasing the area of crop or pasture land. Probably in the whole area the process of clearing will not keep pace with the reversion to brush and timber. On the other hand, new houses are being built so if the present trend continues a much larger population will eventually be living in the vicinity. The availability of suitable building sites is a factor of some importance. This will not stop building for some time. A power line furnishing electricity for domestic purposes runs into the area and is some inducement to future residential development.

Some questions can be raised at this point on the implications of this haphazard residential development. Will sanitation become a problem? Will the type of houses being built cause the community to become a rural slum? What effect will the residential development have on the land use pattern or land use plans in the areas back from the roads? How will the increase in population affect the existing school facilities? Will the tax base be increased in an amount proportionate with the increase in population?

The above description indicates that Area III is unique in that it illustrates the conditions which are created by the settlement of a relatively dense rural population in a poor land area.

### Area IV

Area IV is located seven to ten miles due east of Chillicothe and just east and south of the village of Mooresville, Harrison Township. The topography of the sample area is very rough and broken, the valleys very narrow and the hills steep, rising from the valley floor which has an elevation of 680 feet at Mooresville, to over 1100 feet a mile to the east. The hilltops are narrow ridges and peaks affording little land now in cultivation. The roads and houses are mainly in the valleys and hollows which are too narrow to supply much tillable land except where

they broaden into Walnut Creek Valley. In general, the area surveyed is representative of the same topographical features which exist in the Ross-Hocking Forest, the western border of which is located about two miles east.

At some time or other much of this hill area has been cleared and a few crops grown. But the land is so steep that use for crops has usually been abandoned and the forest cover dominates the landscape. So little livestock is kept that the effect of pasturing is slight although the cattle may range the woods often little impeded by dilapidated fences. Just west of the area the relatively fertile Walnut Creek Valley land supports well-kept farms. The transition from corn belt agriculture to Appalachian hill country is startlingly abrupt. At present, outside employment, usually in Chillicothe, is the principal support of most families living in the hills; formerly, cropping and day labor on the adjacent valley lands supplied supplemental income.

#### Area V

Area V is located in the northwestern corner of Harrison Township within the limits of eight to ten miles northeast of Chillicothe in the watershed of Little Walnut Creek. This area was selected as representative of much of the hill country lying west of Walnut Creek and east of the Scioto River. Because the original area selected contained too few families for the desired sample, a few schedules were taken in Colerain Township on the same type land. Area V supports more agriculture than Areas II, III and IV and less than Area I. The hills are not as steep as in Area IV and some attempt is made to cultivate the upland which, however, is reverting to brush and timber. Elevations above sea level range between 1320 and 700 feet but the high points are isolated knobs for much of the upland ranges between 800 and 1000 feet. A limited amount of upland is level to gently rolling but of low productive capacity. The creek valleys are of medium productivity.

It might be said that the topographic features of Area V are a combination of those found in Areas II and IV; but since the land is more productive in Area V at least some farmers are operating more extensively.

The predominant soil types in all areas belong to the Muskingum series: Muskingum silt loam on the gentle slopes and plateaus and Muskingum silt loam steep phase on the more rugged terrain. Pope and Philo soils are dominant in the narrow stream valley flood plains and the Monongahela soils on the second bottom or terraces. A small area on the bluffs overlooking Ralston Run in Area I contains sufficient calcareous material to modify the character of the valley lands below. On this restricted area alfalfa grows satisfactorily. In Areas I, II and III shales were dominant in the parent material forming the light grayish soil. In Areas IV and V the mixed sandstone and shales produced a slightly more friable soil.

Part of Area I and a little land in Area V were classified by the County Land Use Planning Committee as being agricultural land having special management problems. All the remaining lands in the sample areas were classified as non-agricultural.

# Present Land Use and Agricultural Production in Sample Areas

An outstanding limitation on land use in the sample areas is the small acreage suitable for cultivation. At present about 34 per cent of Area I is in crops and in the other areas the proportion is much lower; 9 per cent in Area II, 14 per cent in Area III, 4 per cent in Area IV and 15 per cent in Area V. Additional details on present utilization of the land are given in Tables 1 to 7, inclusive.

Table 1.- Land Classified According to Present Use, Sample Areas, Ross County, 1939

Area	Crop land		Pasture and other open land		Brush and timber		Total land	
	Acres	Per cent	Acres	Per cent	Acres	Per cent	Acres	Per cent
I	876	34.33	740	29.01	935	36.66	2551	100.00
II	122	8.83	272	19.67	989	71.50	1383	100.00
III	83	13.65	125	20.55	400	65.80	608	100.00
IV	51	3.98	138	10.76	1094	85.26	1283	100.00
V	217	15.16	231	16.14	983	68.70	1431	100.00
Total land	1349	18.39	1506	20.75	4401	60.66	7256	100.00

Table 2.- Utilization of Land for Crops and Other Purposes, Sample Areas, Ross County, 1939

	Huntington Township			Harrison Twp.		Total
	Area No.1	Area No.2	Area No.3	Area No.4	Area No.5	
	Acres	Acres	Acres	Acres	Acres	
Corn	346	99	44	26	108	623
Small grains	269	0	25	10	34	338
Soybeans	24	11	3	--	23	61
Clover-alfalfa	65	--	--	--	2	67
Other hay	172	12	11	15	50	260
Rotation pasture	171	--	10	--	18	199
Open land permanent pasture*	506	208	94	99	193	1100
Woods pasture	632	543	298	377	542	2392
Woods not pastured	303	446	102	717	441	2009
Orchard	16	39	0	3	0	58
Building sites	47	25	21	36*	20	149
Total acreage	2551	1383	608	1283	1431	7256

\* Includes some open idle land.

Table 2(cont.).- Utilization of Land for Crops and Other Purposes,  
Sample Areas, Ross County, 1939

	Huntington Township			Harrison Twp.		Total
	Area	Area	Area	Area	Area	
	No.1	No.2	No.3	No.4	No.5	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Corn	13.56	7.16	7.24	2.03	7.54	8.59
Small grains	10.54	0	4.11	.78	2.38	4.66
Soybeans	.94	.80	.49	-	1.61	.84
Clover-alfalfa	2.55	-	-	-	.14	.92
Other hay	6.74	.87	1.81	1.17	3.49	3.58
Rotation pasture	6.70	-	1.64	-	1.26	2.74
Open land permanent pasture	19.84	15.04	15.46	7.72	13.49	15.16
Woods pasture	24.78	39.25	49.02	29.38	37.88	32.97
Woods not pastured	11.88	32.25	16.78	55.88	30.82	27.69
Orchard	.63	2.82	-	.23	-	.80
Building sites	1.84	1.81	3.45	2.81	1.39	2.05
Total per cent	100.00	100.00	100.00	100.00	100.00	100.00

Note in Table 2 the poor balance between grain and forage crops. The small amount of leguminous crops indicates that the rate of soil depletion is serious.

Table 3.- Grain and Hay Produced and Animal Units\* Kept or Produced,  
Sample Areas, Ross County, 1939

Area	Grain produced bushels	Hay produced tons	Number of animal units:	
			Work stock	Productive livestock
I	16,070	144	45	157.17
II	1,450	25.50	11.5	52.65
III	1,795	11.50	4	39.37
IV	1,180	20	7	30.00
V	4,138	63.50	25	82.05
Total	24,633	264.50	92.50	361.24

\* Animal unit: one horse, one cow, 1400 lbs. of hogs or 100 chickens.

Table 4.- Hay and Pasture Consuming Animal Units, 1939

Area	Horses	Cows	Other cattle	Total units	Average acres of pasture per animal unit
I	45	56	25	126	10.39
II	11.5	30	5.50	47	15.98
III	4	22	8	34	8.88
IV	7	17	3.50	27.50	17.31
V	25	31	23	79	9.53
Total	92.50	156	65.00	313.50	11.77

Five average size corn belt farms on good land will equal the physical production of agricultural products in four areas covered by this study. Area I is more productive.

Table 5.- Land Holdings Classified According to the Acres in Crops, Sample Areas, Ross County, 1939

Acres in crops(1) grouped in class intervals	No. of land holdings	Total acres all holdings	Average acres per holding	Total crop acres all holdings	Average crop acres per holding
No acres in crops	44	1,199	27	0	0
1 to 4 acres	16	790	49	37	2
5 to 9 acres	11	847	77	83	8
10 to 19 acres	13	1,080	83	159	12
20 to 29 acres	5	471	94	132	26
30 to 49 acres	12	1,832	153	443	37
50 to 99 acres	4	722	181	282	70
100 acres or more	1	326	326	240	240

(1) Exclusive of home gardens.

The size of individual land holdings ranges from less than one acre to more than 300 and the land in crops from zero to more than 200. But the crop land is unevenly distributed because of topographical features of the terrain and low productivity. About two-fifths of all tracts have no crop land, gardens excepted.

Table 6.- Percentage of the Total Number of Land Holdings  
Which Are in Various Size Groups

Area	Size of Holding						Total
	Less than 10 acres	10 to 19 acres	20 to 49 acres	50 to 99 acres	100 to 174 acres	175 acres or more	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	
I	17.24	6.89	13.79	24.14	20.69	17.24	100
II	10.53	0.00	21.05	31.58	31.58	5.26	100
III	36.84	10.53	36.84	5.26	10.53	0	100
IV	21.05	0	26.32	26.32	21.05	5.26	100
V	26.32	0	10.53	42.11	15.79	5.26	100
All areas	21.90	3.81	20.76	25.71	20.00	7.62	100

Small, medium and large land holdings are about equally numerous.

Table 7.- Percentage of the Total Land Area Included in Holdings  
of Different Sizes

Area	Size of Holding						Total
	Less than 10 acres	10 to 19 acres	20 to 49 acres	50 to 99 acres	100 to 174 acres	175 acres or more	
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	
I	.27	1.06	5.21	21.44	28.03	43.99	100
II	.29	0	7.95	27.04	52.06	0	100
III	3.45	4.77	33.72	15.79	42.27	0	100
IV	.78	0	14.03	30.63	38.66	15.90	100
V	1.12	0	5.66	40.25	32.01	20.96	100
All areas	.80	.77	9.77	27.37	36.47	24.82	100

But the small holdings contain a tiny percentage of the total land.



### Potential Land Use in Sample Areas

The question can be raised, is it feasible to increase the crop and pasture acreage in the various areas? And, what quality of land is available for these uses? To answer these questions a land classification was made on the basis of potential use which need be explained. Each land holding was viewed from the standpoint of a person who would be obliged to make as much of his living as possible out of that holding. It was further assumed that sufficient capital would be available or made available through some agency to improve the land by the use of lime, fertilizer and leguminous crops to a point where it would at least return wages to the operator. In other words, provided the land was not too eroded or too steep for continued cultivation it was graded as good, fair or poor crop land.(1)

According to the classification made in Tables 1 and 8 it would be possible to increase the crop land in Area I from 34 per cent of the land area at present to 47 per cent. One-half this increase would be accomplished by bringing poor land into cultivation which might be an unprofitable process. In the other areas any significant increase in crop acreage would be through the reclamation of poor land now in brush. At present 1349 acres are used for crops in all five areas. Through liberal subsidy this could be increased to 2046 acres, of which 69 acres were classed as good, 1407 as fair and 570 as poor crop land. In other words, slightly more than the present crop acreage was classed as potentially fair or good crop land.

In general, sufficient pasture land is available to supplement the available crop land, the potential acreage in each class being about equal to the other. But again, it must be observed that the quality of pasture land is mainly poor, Area I excepted; that to provide good forage liberal treatments with lime and fertilizer would need be a standard permanent practice in addition to the preliminary cutting of brush and eradication of broom sedge. Except in Area I, no evidence exists to encourage the development of extensive grazing operations, or to justify the planning of the agriculture around permanent pasture as the major type of land utilization.

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(1) The terms, good, fair, and poor crop land as used in this report conform approximately to the concept of Class I, II and III land as defined by the Soil Conservation Service, for southeastern Ohio, with the qualification that the land graded as poor crop land in this report would require some preliminary special treatment before it could be expected to return the cost of cultivation. I.e., it is Class III land in the sense of potential future use. Similarly, good, fair and poor pasture land is Class IV on the S. C. S. classification, provided liberal restorative measures were applied to that graded as poor. Timber land is Class V on the S. C. S. rating.

Table 8.- Land Classified According to Potential Use,  
Sample Areas, Ross County, 1939

Area		Crop land		Pasture land		Timber land	
		Acres	Per cent*	Acres	Per cent*	Acres	Per cent*
I	Good	52	2.04				
	Fair	951	37.28	445	17.44	488	19.13
	Poor	200	7.84	325	12.74	90	3.53
	Total	1203	47.16	770	30.18	578	22.66
II	Good					40	2.89
	Fair	90	6.51	15	1.08	414	29.93
	Poor	240	17.35	477	34.50	107	7.74
	Total	330	23.86	492	35.58	561	40.56
III	Good						
	Fair	98	16.11	40	6.58	108	17.76
	Poor	13	2.14	169	27.80	180	29.61
	Total	111	18.25	209	34.38	288	47.37
IV	Good	12	.94			20	1.56
	Fair	75	5.85	48	3.74	895	69.75
	Poor	12	.94	125	9.74	96	7.48
	Total	99	7.73	173	13.48	1011	78.79
V	Good	5	.35				
	Fair	193	13.49	150	10.48	585	40.88
	Poor	105	7.34	303	21.17	90	6.29
	Total	303	21.18	453	31.65	675	47.17
Total	Good	69	.95			60	.83
	Fair	1407	19.39	698	9.62	2490	34.31
	Poor	570	7.86	1399	19.28	563	7.76
	Grand Total	2046	28.20	2097	28.90	3113	42.90

\* Of total acreage in area.

After deducting the potential acreage which might be used for crops and pasture, the rough and badly eroded land remaining for timber ranges from 23 per cent of the total land in Area I to 79 per cent in Area IV. In case the reclamation of the land classed as potentially poor crop and pasture land is deemed to be questionable policy, this acreage would also be assigned to forestry and the potential timber land would be increased to the following percentage of the land in the various areas:

Area I	43 per cent
Area II	92 per cent
Area III	77 per cent
Area IV	89 per cent
Area V	76 per cent

The above figures suggest the importance of a forest development program particularly in Areas II to V, inclusive.

This survey does not disclose sufficient land of fair or good quality to encourage any important expansion of crop land. However, by very liberal subsidization it would be possible to expand the crop land from 18 per cent to 28 per cent of the land in all areas combined. Likewise, any important expansion in pasture land would involve the reclamation of poor land now growing up to brush. On some small holdings this might be advisable in order to establish a balance between pasture and crop land. A serious limitation in all areas (a small acreage in Areas I and V excepted) is the high lime requirement which will demand continued outlays of cash and labor in order to grow leguminous hay and maintain good quality pasture. And, the same is true of fertilizer.

#### Land Classified as to Slope<sup>(1)</sup>

The topographic features of this hill country place fairly definite limitations on the utilization of the land. It is, therefore, desirable to compare the classification as to potential use, as made above, with the classification of the land on the basis of slope as given in Table 9. About 5 per cent of all the land was graded as level and 29 as gently rolling or a total of 34 per cent which, on the basis of slope alone, would be satisfactorily adapted to crop production. But some of this land is badly eroded, some is subjected to frequent overflow, some is stony, etc., these additional restrictions cause some level and gently rolling land to be classed as undesirable for crop production; part is suitable for pasture and part for timber.

(1) The different grades of slope were estimated by observation and not by accurate measurement. The slope classes used conform approximately to the following percentages: level land 0 to 2 per cent slope, stream valleys slightly more; gently rolling land, 3 to 8 per cent; rolling land 9 to 15 per cent; steep land 16 per cent or more.

Table 9.- Slope of Land, Sample Areas, Ross County

Area	Level		Gently rolling		Rolling		Rough		Total	
	Acres	Pct.	Acres	Pct.	Acres	Pct.	Acres	Pct.	Acres	Pct.
I	99	3.88	1313	51.47	529	20.74	610	23.91	2551	100
II	94	6.80	315	22.78	480	34.70	494	35.72	1383	100
III	6	.99	99	16.28	254	41.78	249	40.95	608	100
IV	62	4.85	56	4.36	239	18.62	926	72.17	1283	100
V	135	9.44	292	20.40	404	28.24	600	41.92	1431	100
Total	396	5.46	2075	28.60	1906	26.27	2879	39.67	7256	100

## Land Tenure in Sample Areas

Ownership by occupants of land holdings in the sample areas is the general rule, this type of tenure existing in the case of 82 per cent of the households occupying 79 per cent of the land. On the other hand, tenancy is associated with some distinct social and land use problems which, in general, can be stated as follows. In the first place, occasional dilapidated houses or shacks are rented to indigent families who make little or even no use of the land outside the building site. The poor housing engenders poor health which may lead to public expense and personal incompetence, the scattered locations add to the cost of transportation of school children and is some handicap to industrial employment of the adults in such families. In short, no social benefit arises and the only economic excuse is that such families are located where they are because they cannot afford decent housing (admittedly the same is true of some owner-occupied holdings). A few families employed in industry occupy comfortable rented houses without making any use of land in addition to the building space. Aside from the cost of pupil transportation no question of public policy is affected by this second group of tenants. A third group of tenants rent larger tracts of land principally for the housing but with the intention of engaging in part-time farming to a very limited extent. This group has little direct interest in the land but does affect a land use program because the tracts they occupy have considerable acreage in nonagricultural land.

A fourth class of tenants are making a serious attempt to farm. These occupy relatively large acreages, are usually aware of the problems of land use and in some instances rate relatively high in personal ability. They present a situation which, from the tenant's viewpoint particularly, might be termed the landlord problem. Absentee owners of this poor land are not inclined to go to any avoidable expense to improve the land, repair fences or buildings or even to make the usual contributions for crop production. Also, the difficulty of contact with the absentee landowner adds to the difficulty of obtaining participation in any action program. Long term leases might enable some of these tenants

to participate in programs beneficial to the land and its occupants. Unless something can be done in this respect tenant occupancy of land in these areas, (a few farms in Area I excepted) represents a final stage of agricultural use before abandonment.

Table 10.- Tenure of Occupants of Land Holdings,  
Sample Areas, Ross County, 1939

Area	Number of holdings		Acres owned	Acres rented
	Owned	Rented		
I	21	8	1943	608
II	17	2	1382	136
III	19	0	608	0
IV	13	6	902	381
V	16	3	1050	381
Total	86	19	5750	1506

#### Condition of Buildings in Sample Areas

In classifying buildings as to condition the primary objective was to grade them according to the state of repair and the quality of construction viewed from the standpoint of their capacity to furnish adequate shelter and healthful comfort to the household in the case of dwellings, and adequacy for the intended use in case of barns and other buildings. According to this standard some log houses were graded fair and good and some practically new, small cheap cottages as poor.

When the principal employment is agriculture the quality of buildings usually corresponds to the quality of land as illustrated by the relatively high rating of dwellings in Area I. On the other hand, because outside employment is so important in these areas, several fair and good dwellings are found on tracts poorly adapted to agriculture. The best example of this latter situation is found in Area III, the community closest to Chillicothe. Except where outside employment supplies an adequate income or the returns from agriculture are maintained the following situation prevails.

Because agriculture is decadent on most tracts, the size and original quality of some houses and barns reflect the prosperity of 50 to 100 years ago, when the land supported more extensive agriculture and high quality timber was available. Some of these buildings are still in fair condition but more are poor or dilapidated. When these original buildings are no longer usable they are either replaced by small cheap structures or the land is abandoned. This situation is more noticeable in respect to barns than to dwellings as may be noted in the classification of barns, Table 12. Shelter for livestock is inadequate on many part-time farms. Cows, chickens and hogs cannot be kept profitably when exposed so much to the weather as was occasionally observed.

Table 11.-- Condition of Houses, Individual Land Holdings,  
Sample Areas, Ross County, 1939

Area	Good	Fair	Poor
	Number	Number	Number
I	10	12	7
II	3	7	9
III	5	10	4
IV	4	7	8
V	3	10	6
Total	25	46	34

Table 12.-- Condition of Barns, Individual Land Holdings,  
Sample Areas, Ross County, 1939

Area	Good	Fair	Poor	Tracts with none
	Number	Number	Number	Number
I	4	7	14	4
II	-	3	14	2
III	1	7	7	4
IV	1	4	7	7
V	-	4	10	5
Total	6	25	52	22

Table 13.-- Condition of Other Buildings, Individual Land Holdings,  
Sample Areas, Ross County, 1939

Area	Good	Fair	Poor	Tracts with none
	Number	Number	Number	Number
I	2	6	18	3
II	1	2	15	1
III	-	7	11	1
IV	-	4	10	5
V	1	3	13	2
Total	4	22	67	12

### Water Supply

Shallow wells are the most frequent source of water supply in all areas except in Area III where more cisterns are used. The larger farms usually have more than one well or a combination of wells and cisterns. A few households in all areas depend on springs entirely for water for domestic purposes and livestock and frequently on springs and small streams for livestock. Failure of the water supply in dry weather was encountered in a few cases and no doubt would be more serious if much livestock were kept. At least the data collected in this study do not indicate any unusually serious difficulty in securing water in sufficient amount for present uses. No information was obtained as to the quality or purity of the water supply. It is known that the deep veins of water in Huntington Township contain enough fluorine to be objectionable for human consumption.

Table 14.- Water Supply: Sample Areas, Ross County, 1939

Area	Source of water supply for household use and livestock					
	Well	Cistern	Spring	Pond for livestock	Carried or hauled	
	No.	No.	No.	No.	for home use	for livestock
I	17	7	10	1	2	1
II	13	8	5	1	1	1
III	5	11	4	0	0	0
IV	17	1	2	0	1	0
V	19	0	4	0	0	0
Total	71	27	25	2	4	2

Table 15.- Household Sanitation: Sample Areas, Ross County, 1939

Area	Standards of sanitation in individual households		
	Good	Fair	Poor
	No.	No.	No.
I	10	14	5
II	5	7	6
III	7	7	5
IV	4	6	9
V	10	7	2
Total	36	41	27

# Degree of Dependence on the Land<sup>(1)</sup>

Observation indicates that some families in the sample areas use the land they occupy only for building sites, other families obtain some subsistence by part-time farming and other families their subsistence and also practically all their cash income from agriculture. The pattern of outside employment and agriculture varies from farm to farm and from community to community.

Some measure of this variation in dependence on the land is supplied by the following classification of households in the sample areas:

Per cent of family income from the land(2)	Number of households					
	Sample areas					Total
	I	II	III	IV	V	
Less than 10 per cent	2	2	3	5	1	13
10 to 19 per cent	1	1	1	1	0	4
20 to 29 per cent	8	7	8	8	11	42
30 to 49 per cent	0	5	4	1	1	11
50 to 74 per cent	7	2	2	3	1	15
75 per cent or more	11	2	1	1	5	20

Families obtaining less than 10 per cent of their income, exclusive of housing, from the land as a rule occupy small tracts and have practically no livestock or gardens. This does not necessarily mean a low standard of living but such is often the case. Those obtaining from 10 to 19 per cent of their living from the land often occupy tracts with considerable acreage but have no crop land and little livestock but do make some pretense at gardening. The most important group

- (1) A typical part-time farming set up in these areas supplies products for family subsistence which were assigned the following net values at the farm (estimated cash costs deducted):

Fair garden for family of 4 (approximately 1/8th acre)	\$25.00
30 chickens (eggs and meat)	40.00
1 cow (milk and calf)	40.00
Pork produced	10.00
Wood for fuel	10.00
Total	\$125.00

Individual families varied greatly from this standard and were graded accordingly.

- (2) Exclusive of the value of housing. No doubt cheap housing is the important economic reason why some families are resident in the sample areas. Studies in various parts of the United States indicate that, depending on location and financial status of families, from 10 to more than 20 per cent of the income of the average household is spent for shelter. It is a conservative estimate that in the above sample areas the cost (or value) of housing is equal to 10 to 15 per cent of the living expenditures of the typical household.



numerically of all families, except in Area I, are those obtaining from 20 to 29 per cent of their living from the land. These families often have a small acreage in crops, keep one or two cows, produce some pork for home consumption, have a small flock of chickens, and a garden which occasionally includes a few strawberries or raspberries. With steady employment to provide cash income and the above mentioned products for subsistence, a few families enjoy a relatively comfortable living. On other holdings the land supplies such poor pasture that milk production is adversely affected, gardens are poor and the entire situation reflects a low standard of living. Other families in the sample areas place greater dependence on agricultural production but still rely on outside employment for a substantial share of the cash income. Finally, another group of families have a primary interest in commercial agriculture. More than one-half of these are located in Area I, the remainder are scattered through the other areas on the tracts containing more than the usual amount of land suitable for crops.

As a rule the quality of livestock is best on those farms where agriculture supplies full-time employment. The same observation is true of the quality of gardens as indicated by the figures in Table 16.

Table 16.- Size of Holding, Crop Acres, Livestock Units and Garden of Households Classified According to the Estimated Percentage of Income From the Land, Sample Areas  
Ross County, 1939

Per cent of income from the land	Number of households	Per cent of households	Average size of holding (acres)	Average crop acres per holding	Average units of livestock per holding	Quality of Garden			
						Good	Fair	Poor	None
						No.	No.	No.	No.
Less than 10 per cent	13	12.38	8.00	0	.03	-	-	1	12
10 to 19 per cent	4	3.81	69.25	0	.24	-	1	2	1
20 to 29 per cent	42	40.00	45.21	2.29	2.06	7	20	14	1
30 to 49 per cent	11	10.48	67.36	10.55	3.90	2	7	2	-
50 to 74 per cent	15	14.29	83.27	22.73	5.42	5	7	3	-
75 per cent or more	20	19.04	142.10	44.00	15.48	11	7	2	-
Total or average	105	100.00	67.83	13.07	4.95	25	42	24	14



### Population

The population living in the sample areas is heavily weighted by individuals of school age or younger and 65 years of age or older. The causes of this situation are: a relatively high birth rate, migration of youth upon reaching the employable age, and the tendency of old people to take up residence in these areas, being attracted by the cheap land and housing and by sentimental attachment to the place of their birth.

Despite a high birth rate the average size of household residing in these sample areas was 4 persons as compared with 4.2 persons for all rural Ohio. Some households had 6 to 10 children who have established residence elsewhere.

Table 18.- Number by Sex of Persons in Age Groups,  
Sample Areas, Ross County, 1939

Age	Male	Female	Total
Under 5	22	20	42
5 - 9	15	20	35
10 - 14	25	33	58
15 - 19	17	23	40
20 - 24	17	8	25
25 - 29	16	10	26
30 - 34	6	9	15
35 - 44	24	24	48
45 - 54	27	28	55
55 - 64	16	13	29
65 - 74	22	20	42
75 and over	6	4	10
Total	213	212	425

One of the most important circumstances associated with population in this hill country is the surplus of children above replacement requirements. Data from the census of 1930 indicated that rural Ross County was at that time producing a surplus of 84 per cent above replacement requirements of the population. The data assembled in this study indicate that the birth rate in the sample areas is sufficiently high to produce a surplus of 86 per cent above replacement requirements. It should be observed that the calculations based on the sample areas cover only 106 households. A larger sample might change

the ratio. In Pike County where much land is similar to these sample areas, the 1930 census indicated a surplus of 99 per cent.(1)

Previous residence and place of birth.- More than one-half, 53 per cent, of the heads of the households interviewed were born in the township where they now reside. Twelve per cent were born in other townships of Ross County, 25 per cent in some other Ohio county and 10 per cent in other states. The most general movement into these areas is from the hill region on both sides of the Ohio River. Most of the white settlers of Ross County came from the same direction and the migration continues because of relative employment opportunities. On the other hand, some residents have come from other directions so it is not correct to infer that the culture pattern of these communities is influenced alone by newcomers from other poor land areas. It is of some significance that the lure of cheap land has attracted a few families from good agricultural counties.

Some families came directly from other states or counties to their present location, but more often migration has been by a series of moves associated with changes in employment. Marrying into families native to the vicinity is one reason for settlement in the areas studied. This applies alike to husbands and wives.

Table 19.- Previous Residence and Place of Birth of Heads of Households, Sample Areas, Ross County, 1939

Area	Previous Residence				Place of Birth			
	Same township	Same county	Ohio	Other states	Same township	Same county	Ohio	Other states
I	21	1	4	0	20	0	8	0
II	13	0	5	1	14	0	3	2
III	7	4	7	1	7	2	7	2
IV	3	8	2	4	3	7	1	6
V	10	4	4	0	9	3	6	0
Total	54	17	22	6	53	12	25	10

(1) These calculations are based on the life tables of 1930 which determine that a ratio of 443 children under 5 years of age to each 1000 women 20 to 44 years of age is sufficient to replace a population. The following ratios are the basis of the statements made above:

	Children under 5 years	Women 20 to 44 years
Rural Ross County, 1930 Census	814	: 1000
Rural Pike County, 1930 Census	879	: 1000
Sample areas Ross County, 1939	824	: 1000

Length of residence in present location.- About one-fourth of the families contacted have lived in their present location less than five years. There does not seem to be any particularly significant difference in this respect between areas. Families relying but little on agriculture find it relatively easy to change residence. Frequently families have moved to other communities for a period of years but retained ownership of their land and later returned. When an active demand for industrial workers develops in urban centers this type of migration is accelerated. Depression reverses it.

About one-fifth of the families have lived in their present location 5 to 9 years and the same proportion from 10 to 19 years. The distribution of this latter group between areas indicates that in Area I where agriculture is better established a higher proportion of the families retain permanency of residence. About 37 per cent of all families have been in their present location 20 or more years. This group contains a number of aged people who have lived in the one location practically all their lives.

Persons interviewed were asked the question, how do you like to live here? The most frequent answer was in substance: this is a good place to live but a poor place to make a living. Given convenient industrial employment practically all families owning their homes would live in their present location by preference.

A different attitude was expressed by two owners and by nearly all tenants who are trying to farm. Reasons for dissatisfaction with their present locations were: (1) the owner will do nothing to improve the land or repair the buildings and fences; (2) the land is too poor to make a living and pay someone else for the use of the land; (3) a farm is wanted where more crop land is available.

The reason for dissatisfaction on the part of two owners was the meagre returns which have been realized. In both cases the length of residence has been less than five years. The point is rather important that considerable wastage of human effort and capital results from the fact that persons unacquainted with the limited productive capacity of the land purchase farms and later discover their inability to make a living. The usual way out is to sell to another novice.

Table 20.- Heads of Households Classified According to Length of Residence in Present Location, Sample Areas, Ross County, 1939

Area	Less than 5 years		5 to 9 years		10 to 19 years		20 years or more	
	Number	Average	Number	Average	Number	Average	Number	Average
	of	length	of	length	of	length	of	length
	house-	of res-	house-	of res-	house-	of res-	house-	of res-
	holds	idence	holds	idence	holds	idence	holds	idence
		Years		Years		Years		Years
I	6	2	3	8.6	9	16	11	29.8
II	4	1.5	4	7	2	11	9	48
III	5	2.4	7	5.9	3	16.7	4	34.2
IV	4	2.2	3	8.3	1	12	9	31.9
V	5	3.2	3	6.3	4	11.5	6	38.5
Total	24	2.29	20	7.0	19	14.4	39	37.3

## Occupational Pattern of Residents in Sample Areas

Out of 110 persons gainfully employed 34, or 31 per cent, were operating farms as their principal occupation. Another 10 persons, or 9 per cent were farm laborers most of whom obtained part or all of their employment outside the sample areas. Agriculture within the sample areas supplies the principal employment to approximately one-third of the persons gainfully employed.

Three concerns in Chillicothe, Paper Mill, B. & O. Shops, and Shoe Factory are, in the order named, the principal sources of employment for mechanics and industrial workers. In addition a few carpenters, a blacksmith, and a furnace mechanic are found living in the sample areas. All told, mechanics and industrial workers represent 25 per cent of the gainfully employed.

Truck drivers, including school bus operators, represent 6 per cent and public and personal service workers, such as filling station attendants, laundry workers, etc., another 6 per cent of the gainfully employed.

Persons listed as business and professional (5 per cent) include a traveling evangelist, an engineer, a business man who buys and sells hoop poles, a lumberman and a school teacher.

Work relief was giving employment to 18 per cent at the time this study was made. Several other workers living in the areas have been on work relief at some time during the past five years.

In addition to households supported by gainful employment 15 persons in 14 households were receiving pensions: 3 military, one railroad, and 11 old age pensions. Two other households had no persons gainfully employed, practically no subsistence income and were living temporarily on credit or savings. Five other families with practically no outside employment were obtaining more adequate subsistence from cows, chickens, a few hogs and gardens but with no other crops. All five families have had contact with relief agencies.

Table 21.- Occupational Pattern of Gainfully Employed Persons, Sample Areas, Ross County, 1939

Occupation	Area					Total	
	I	II	III	IV	V	No.	Pct.
	No.	No.	No.	No.	No.	No.	Pct.
Farm operator	17	6	3	2	6	34	31
Farm laborer	2	4	0	1	3	10	9
Mechanic	2	0	4	4	2	12	11
Industrial worker	4	2	4	4	1	15	14
Truck driver	4	3	0	0	0	7	6
Personal service	2	1	1	2	1	7	6
Business and professional	1	1	2	1	0	5	5
Work relief	4	4	3	3	6	20	18
Total	36	21	17	17	19	110	100
Pensions	4	2	4	3	2	15	
	40	23	21	20	21	125	

A little additional description of employment in agriculture is desirable to further define the limits of opportunity. If the land in crops, on the 34 farms classified as supplying the principal gainful employment to farm operators, were equally divided, each such worker would have 40 acres of crop land on his farm. But the land is not equally divided: the crop acres on these 34 farms vary from 10 to 240 per farm; and as many farms have less than 30 as have more than 30 crop acres.

#### Attitudes Toward Various Types of Governmental Assistance

One objective in this study was to determine the existing status of opinions in respect to particular types of governmental assistance affecting land use. Care was exercised to approach these questions from the viewpoint that anything discussed was merely to get advice; that opinions were wanted only to determine whether farmers were interested in doing certain things with their land; and whether or not a government program to help do such things would have any practical application on each farm, providing a plan was worked out that was satisfactory to the occupant of the land. The specific questions then discussed were:

- (1) Obtaining an adequate supply of lime for the land;
- (2) Obtaining an adequate supply of fertilizer;
- (3) Government payments for erosion control practices;
- (4) Government payments for work done on farm woodlots to render them more productive;
- (5) Government help to reforest land;
- (6) An Extension program to help develop home gardens.

In a total of 98 cases the response was sufficiently positive to indicate that the persons interviewed understood what was being asked. In eight cases either no comprehension of the subject existed or the person interviewed was not in a position to give a satisfactory answer. As often as possible the head of the household was interviewed by preference. On the other hand, most housewives know whether their husbands have talked about the need for lime, etc., and it was felt, could impart the status of opinion of the husband.

Usable responses were grouped in three categories given in Table 22. "Yes" answers indicate a favorable response. "No" answers indicate that the suggested program, in the opinion of the person interviewed, would have no application on the land occupied by that person, under his system of land use. Indefinite answers include a range of opinions which might develop into a favorable attitude or vice versa but which, at the time of interview, was not definitely crystallized.

In general, the opinions expressed as well as the frequent absence of well developed opinions indicate the need for educational work to develop a keener appreciation of the circumstances which the suggested programs are intended to cover. With the possible exception of lime and fertilizer the processes involved in the various suggested programs are usually outside the circle of land use practices actually followed or commonly observed by the residents of the sample areas. Following are some additional reasons for variation of reaction in the different areas.

Attitudes varied considerably with the locality. Most farmers in Areas I and II know that the land needs lime and the use of fertilizer is a well established practice. Therefore, assuming a reasonable arrangement, from the farmer's viewpoint, a fairly high degree of participation would follow a government program of supplying lime and fertilizer in Areas I and II. In Area III so few people are interested in field crops or extensive pasture that few people had any well developed opinions in respect to the use of lime and fertilizer. The same is true to some extent in areas IV and V, but in addition in these two areas there exists a distinct distrust of the government's motives; a distrust which in a few cases amounts to open antagonism engendered by the suspicion that the government's interest in their farms is associated with some plan for the expansion of the Ross-Hocking forest.

Aid for erosion control was felt by a considerable proportion of the people as not applying to their particular situation. Often this was the case on holdings where the small acreage or lack of acreage in crops does not subject much land to noticeable erosion. On the other hand, some farmers with an obvious erosion problem expressed no interest in erosion control either not recognizing the problem or minimizing its importance.

In Areas I and III little interest was evidenced in a plan to increase the productivity of farm wood lots. In Areas II, IV and V this suggestion was better received. About two-thirds as many people were interested in reforestation as in earning payments for work on existing woodland. The opinion was often expressed that this land will grow trees if left to itself. Naturally, people who have been concerned all their lives in cutting brush think it more desirable to clear land for crops or pasture than to reforest it. On the other hand, the idea of "cutting wood trees", etc., out of existing growth is an established custom followed more or less in obtaining firewood and if the government is willing to pay for such work so much the better. People on the W.P.A. level, as a rule, were favorable to any idea which would make work on their own land or in their home community.

A very poor response was received to the suggestion of help to grow better home gardens. Families who have had contact with the Farm Security Administration are usually more garden conscious than any other group. Most people consider themselves competent to grow a good garden. In their minds there is no problem. Closely Associated with this idea is the evident lack of variety of garden crops that are grown. Corn, potatoes, beans, a few onions and radishes about cover the garden products many families produce. Their established food habits do not demand much variety of garden products. Evidently any program of garden improvement could properly include some educational work to emphasize the advantages of additional variety in vegetables.

Despite an evident suspicion of motives, relatively few people expressed an open antagonism toward a program of government aid. However, the following cases can be cited as illustrating the extreme. In Area IV two families wanted absolutely nothing to do with any government program and a third was rabidly anti-New Deal and, therefore, against most any plan



Table 22.- Attitudes of Individuals Toward Suggested Types of Governmental Assistance  
Sample Areas, Ross County, 1939

Area	Could use more						Pay for			Pay for forest			Reforestation			Development of		
	Lime			Fertilizer			erosion control			management						home gardens		
	Yes	No	Indef.	Yes	No	Indef.	Yes	No	Indef.	Yes	No	Indef.	Yes	No.	Indef.	Yes	No	Indef.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
I	17	4	5	18	3	5	6	7	13	0	11	15	3	9	14	2	13	12
II	12	5	2	11	5	3	2	5	12	4	5	10	4	11	4	1	16	2
III	6	9	4	8	8	3	1	10	8	2	8	9	1	11	7	2	13	4
IV	4	5	7	3	5	8	1	6	9	5	2	9	1	6	9	0	11	5
V	5	4	9	5	4	9	4	4	10	6	5	7	3	5	10	0	8	10
Total	44	27	27	45	25	29	14	32	52	17	31	51	12	42	44	4	61	33

Table 23.- Total Acreage Occupied by Individuals Giving Various Responses to Suggested Types  
of Governmental Assistance, Sample Areas, Ross County, 1939

Area	Could use more			Pay for erosion			Pay for woodlot			Reforestation		
	lime			control			improvement					
	Yes	No	Indef.	Yes	No	Indef.	Yes	No	Indef.	Yes	No.	Indef.
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
I	1833	434	217	659	694	1194	0	1247	1300	283	868	1399
II	917	272	194	172	272	939	329	272	782	255	946	182
III	123	207	278	26	212	370	146	184	278	5	353	250
IV	272	396	527	33	436	727	284	105	806	33	417	745
V	676	174	574	600	174	650	633	332	457	536	244	644
Total	3821	1483	1790	1490	1788	3877	1392	2140	3623	1112	2828	3220

at the present time because of the implied political association. Although non-cooperative in attitude, this man admitted that the items mentioned were what the land and people needed. One farmer in Area V evidently feared any sort of government interference to the extent that he claimed his farm needed nothing he could not do himself (one-half of this farm is practically abandoned land).

The figures in Table 22 indicate what proportion of the people is favorable to the various programs. From a land use standpoint, opinions were more favorable than the percentage of "yes" answers would indicate, a point demonstrated by the acreages recorded in Table 23. It is apparent that the people on the larger tracts of land appreciate, or at least have a more definite interest in various land use problems, and according to the results of this inquiry, would more readily participate in the suggested programs than the people on the smaller tracts. It should be noted, however, that few people indicated an interest in development of home gardens regardless of the size of holding.

It need be emphasized that a lack of interest in the types of assistance mentioned above is a more serious obstacle than any very well defined opinions. So many of these people have not been consciously influenced by any type of agricultural education that the primary problem of any program is education. How to break down individual inertia, how to develop group interest and leadership, how to arouse an active desire for better gardens, etc., is difficult to see because the necessary procedure is beyond existing experience and possibly would require more effort than existing facilities can immediately supply.

#### A Perspective of Individual Land Holdings and Households

It is highly desirable to get a perspective of the combination of circumstances associated with each land holding and the family occupying it. To obtain such a view, so far as possible, a number of items of information have been brought together in Table 24. In this table the schedules taken in each area are arranged in a series according to the acres in crops on the various land holdings. Arrangement in this order helps to depict the variable pattern of land use and outside employment or other source of income which maintains individual families. Also it gives some insight into the range in living standards maintained by individual households in the various areas.

Table 24.- Agricultural and Occupational Information on Households Arranged  
According to the Number of Acres in Crops

This arrangement grades the families approximately according to their dependence on agriculture and usually indicates the degree of active interest in the land.

AREA I											
Sched- ule No.	Crop acres	Total acres	Gar- den (1)	Grain pro- duced (bu.)	Hay pro- duced (tons)	Livestock units kept or produced(2)					Total units
						Horses	Cows	Other cattle	Hogs	Poultry	
3	0	1	O	0	0	0	0	0	0	0	0
8	0	30	P	0	0	0	0	0	0	.12	.12
10	0	1	P	0	0	0	1	0	.40	.30	1.70
11	0	1	P	0	0	0	0	0	0	0	0
12	0	11	P	0	0	0	1	0	.18	.35	1.53
18	0	2	P	0	0	0	1	0	.10	.20	1.30
20	0	2	F	0	0	0	0	0	0	.30	.30
29	0	70	P	0	0	0	1	0	0	.20	1.20
2	1	29	P	35	0	1	1	1.5	.80	.50	4.80
9	3	16	G	120	0	1	1	0	.40	.60	3.00
21	8	44	P	160	0	1	1	0	.20	.35	2.55
19	9	76	G	275	8	1	3	0	1.50	.50	6.00
13	10	71	P	400	5	2	3	1	2.60	.40	9.00
28	10	103	F	160	0	1	2	0	.36	.30	3.66
24	13	73	F	80	5	2	3	0	2.00	.50	7.50
22	16	75	F	300	4	2	1	0	.66	.50	4.16
23	16	30	F	270	7.50	1	1	0	.30	.30	2.60
17	26	110	P	231	0	2	2	0	1.50	.30	5.80
25	26	96	G	1040	25	2	15	0	.30	.50	17.80
26	30	100	G	750	10	2	5	0	2.00	.50	9.50
16	34	196	G	958	8	4	3	0	3.21	1.00	11.21
14	41	145	F	1270	12	8	7	3	5.70	.50	24.20
15	44	86	F	770	4	2	3	0	1.30	.50	6.80
6	45	135	G	1170	15	5	4	3	8.00	1.00	21.00
27	54	194	F	954	15	6	3	0	2.25	1.50	12.75
1	63	122	G	1558	37	6	4	4	8.21	1.00	23.21
4	75	180	G	2050	37	4	10	10	4.20	.50	28.70
5	90	226	G	750	7	2	2	0	8.50	1.00	13.50
7	240	326	F	5625	10	5	1	4	29.00	2.50	41.50

(1) Good, fair, poor or no garden indicated by G, F, P, or O.

(2) A livestock unit - 1 horse, 1 cow, 1400 pounds of pork or 100 chickens.

Sched- ule No.	Condition of buildings(3) House Barn Other Bldgs.			Sani- ta- tion	Size (4) of house- hold	Occupational and Income Information
3	P	N	N	F	3	W.P.A. tenant.
8	P	P	P	P	2	Mother - old age pension - Son - poor health nurses mother.
10	P	P	P	P	4	W.P.A. tenant rents additional cow pasture.
11	P	N	N	P	4	W.P.A. tenant.
12	F	N	P	F	6	Attendant at Veterans Hospital.
18	F	P	P	F	4	School bus driver, auto mechanic - part-time farmer on adjacent farm - tenant.
20	G	N	N	F	3	Truck driver - farms a little on shares.
29	F	P	P	G	2	Army pension of dead son supports aged father and mother.
2	G	P	F	F	3	Paper mill.
9	G	G	G	G	5	Father is carpenter, son is farm laborer and does work at home.
21	F	P	P	F	2	Truck driver - land cropped on shares.
19	G	F	P	G	4	Farmer - was on State highway until recently - will farm more in 1940.
13	P	P	P	P	3	Tenant farmer - poor health - is about down to relief level.
28	F	P	P	G	4	Cares for two old age pensioners - is buying corn to fatten hogs.
24	G	P	P	F	5	Did work in canning factory; trying to establish self as farmer - F. S. A. loan.
22	G	F	F	G	4	Father farms. Daughter and son work in shoe factory.
23	G	F	P	G	5	Daughter on W.P.A. Father - poor health - makes brooms and farms.
17	F	P	P	F	4	Tenant farmer - poor health - partially maintained by son.
25	F	F	P	G	4	Dairy farmer - productive valley land for crops.
26	F	P	P	F	5	Father works in shoe factory. Son and grand- father do farm work.
16	P	F	P	G	2	Tenant farmer.
14	P	P	P	F	7	Farmer-F.S.A. loan - heavily in debt - one son farm laborer - one part-time laborer.
15	G	P	F	F	2	Farmer - also owns tenant operated farm adjoining.
6	G	G	F	G	3	Farmer.
27	F	F	F	F	3	Farmer.
1	G	G	G	F	4	Farmer - son is truck driver in Chillicothe.
4	F	F	P	F	4	Farmers (two brothers) and commercial orchard- ists - keep beef cows.
5	F	P	P	P	8	B. & O. shops - tenant farmer - but claims expenses equal income.
7	G	G	F	G	4	Son operates farm. Father is State engineer.

(3) Good, fair, poor or no buildings indicated by G, F, P or N.

(4) Good, fair, or poor sanitation indicated by G, F, or P.

Table 24 (cont.)

## AREA II

Schedule No.	Crop acres	Total acres	Garden	Grain produced (bu.)	Hay produced (tons)	Livestock units kept or produced					Total units
						Horses	Cows	Other cattle	Hogs	Poultry	
1	0	25	P	0	0	0	2	0	.40	.25	2.65
2	0	23	F	0	0	0	1	0	.50	0	1.50
4	0	25	P	0	0	1	2	0	2.50	.50	6.00
5	0(15)	1(135)	0	0(110)	0(3)	0	0	0	0	0	0
6	0	1	0	0	0	0	0	0	0	0	0
9	0	100	0	0	0	0	2	0	0	.25	2.25
16	0	37	F	0	0	0	2	0	.60	.35	2.95
17	0	3	F	0	0	0	0	0	.30	.20	.50
20	0	60	G	0	0	0	1	0	.30	.20	1.50
19	3	97	F	60	0	2	1	0	.60	.30	3.90
21	4	104	F	0	4	0	1	0	.40	.25	1.65
10	6	57	F	180	0	0	3	0	.40	.50	3.90
23	8	108	0	0	4.5	0	0	0	0	.25	.25
11	10	50	F	200	0	2	2	0	1.50	.60	6.10
12	10	50	F	200	0	2	2	0	.30	.30	4.60
8	15	135	F	110	2	2	2	0	1.00	1.00	6.00
18	16	175	F	100	6	0	3	2.50	.65	.50	6.65
14	26	60	G	210	5	0	3	0	.35	.50	3.85
7	28	129	F	500	6	2.5	3	3	1.80	.50	10.80
3	39	144	F	0	0	2	2	0	.70	.40	5.10

Sched- ule No.	Condition of buildings			Sani- ta- tion	Size of house- hold	Occupational and Income Information
	House	Barn	Other Bldgs.			
1	F	P	P	G	5	Laborer in commercial orchard.
2	F	F	P	G	4	School bus driver - two sons farm laborers, etc.
4	P	P	P	P	9	Paper mill - raises a few hogs on garbage.
5	P	P	P	F	2	No present income - wants W.P.A. job and F.S.A. loan to start farming. Has purchased farm still occupied by tenant.
6	P	N	N	P	2	Old age pension - tenant.
9	F	P	F	F	4	Widow boards three welfare children for living.
16	P	P	P	F	3	Too poor health to work on W.P.A. - occasional relief - wants F.S.A. loan.
17	P	N	P	P	2	Old age pension.
20	F	P	P	F	7	Paper mill.
19	P	P	P	P	6	F.S.A. loan. Cutting pulpwood off farm once abandoned. Was on W.P.A. Wife paid for transportation of children to school bus.
21	F	P	P	F	6	W.P.A. Once applied for F.S.A. loan.
10	P	P	P	P	8	Truck driver (Columbus) son C.C.C. camp. Land rented to cropper.
23	G	P	G	G	2	Land rented to cropper. Mother and son living on savings or inheritance.
11	P	P	P	P	9	Farmer and casual laborer.
12	P	P	P	F	4	W.P.A.
8	P	P	P	F	5	F.S.A. loan. Tenant to vacate farm in Spring-1940
18	F	P	P	F	5	W.P.A.
14	G	F	F	G	2	Land rented to croppers. Small outside business; sells hoop poles.
7	F	P	P	F	2	Farmer.
3	G	F	P	G	5	Drives State highway truck. Has 39 acre apple orchard - F.S.A. loan.

Table 24 (cont.)

## AREA III

Schedule No.	Crop acres	Total acres	Gar- den	Grain pro- duced (bu.)	Hay pro- duced (tons)	Livestock units kept or produced					Total units
						Horses	Cows	Other cattle	Hogs	Poultry	
3	0	25	P	0	0	0	7	0	.25	.20	1.45
4	0	1	O	0	0	0	0	0	0	0	0
7	0	14	F	0	0	0	1	0	0	.25	1.25
8	0	25	G	0	0	0	1	0	.25	.50	1.75
9	0	3	P	0	0	0	0	0	.30	.70	1.00
10	0	1	G	0	0	0	0	0	0	.12	.12
11	0	1	O	0	0	0	0	0	0	.15	.15
13	0	1	O	0	0	0	0	0	.10	.10	.20
14	0	15	F	0	0	0	2	0	.30	1.00	3.30
16	0	36	P	0	0	0	2	0	0	.25	2.25
20	0	5	P	0	0	0	1	0	0	.20	1.20
15	1	26	F	50	0	0	1	0	.50	.50	2.00
1	2	25	P	25	0	0	1	0	.30	.25	1.55
5	3	26	F	50	1	0	1	1	.60	.40	3.00
6	3	9	P	60	0	0	1	0	.25	.30	1.55
2	5	121	F	100	0	0	2	0	0	.30	2.30
18	9	42	G	150	1.50	0	2	0	.30	.25	2.55
19	30	136	F	780	0	2	3	7	1.60	.50	14.10
17	31	96	P	580	10	2	3	0	2.50	.25	7.50

Sched- ule No.	Condition of buildings			Sani- ta- tion	Size of house- hold	Occupational and Income Information
	House	Barn	Other Bldgs.			
3	P	P	P	P	5	Saw mill hand.
4	F	N	N	F	5	Evangelist.
7	G	F	F	G	3	Army pension.
8	G	F	F	G	5	Paper mill.
9	F	P	F	F	5	B. & O. shops.
10	F	N	P	G	2	Old age pension.
11	F	N	F	G	2	Old age pension.
13	G	N	F	G	4	Paper mill.
14	G	F	F	G	2	Home laundry. May apply for F.S.A. loan in 1940.
16	F	F	P	F	6	B. & O. shops.
20	P	P	P	P	3	W.P.A.
15	F	P	P	F	7	W.P.A.
1	P	P	P	P	4	Saw mill hand - has about one acre of tobacco.
5	F	F	F	P	7	Furnace mechanic. Has F.S.A. loan.
6	F	F	P	F	4	W.P.A.
2	F	F	P	G	2	Retired industrial worker may have some outside income.
18	G	G	P	F	4	Saw mill operator - land is share cropped.
19	F	P	P	F	5	Son works farm - discouraged. Father works at Timken Roller Bearing Co., Columbus.
17	P	P	P	P	3	Farmer - almost too old to farm. Old age pensioner - stays with family.



Table 24 (cont.)

## AREA IV

Schedule No.	Crop acres	Total acres	Garden	Grain produced (bu.)	Hay produced (tons)	Livestock units kept or produced					
						Horses	Cows	Other cattle	Hogs	Poultry	Total units
1	0	137	P	0	0	0	0	0	0	.30	.30
2	0	114	F	0	0	0	0	0	.60	.10	.70
4	0	81	P	0	0	0	2	0	0	.20	2.20
5	0	1	O	0	0	0	0	0	0	0	0
6	0	40	G	0	0	0	1	0	0	.25	1.25
7	0	127	F	0	0	0	0	0	.60	.50	1.10
9	0	1	O	0	0	0	0	0	0	0	0
12	0	40	G	0	0	0	1	0	0	.25	1.25
14	0	7	O	0	0	0	0	0	0	0	0
15	0	80	O	0	0	0	0	0	0	0	0
17	0	27	F	0	0	0	1	.50	0	.20	1.70
18	0	1	P	0	0	0	0	0	0	0	0
16	1	90	G	35	0	0	2	0	3.00	.30	5.30
3	2	33	P	25	0	0	0	0	0	.15	.15
8	3	65	P	105	0	2	1	0	.36	.12	3.48
11	3	77	G	105	0	2	1	0	0	.30	3.30
13	3	40	P	60	0	0	2	2	0	.12	4.12
19	10	118	F	250	5	1	1	1	.10	.30	3.40
10	30	204	G	600	15	2	6	0	1.00	.75	9.75

Schedule No.	Condition of buildings			Sani- ta- tion	Size of house- hold	Occupational and Income Information
	House	Barn	Other Bldgs.			
1	P	N	P	P	6	Supported by veteran's pension - tenant.
2	P	P	P	P	8	Paper mill - tenant.
4	F	P	P	F	6	Carpenter unemployed.
5	F	N	N	P	3	W.P.A. tenant.
6	F	P	P	G	3	Claims no outside employment. Very frugal standard of living. Family on vegetarian diet. Has contacted relief office.
7	F	P	P	F	8	B. & O. shops. Tenant. May farm some in 1940.
9	G	N	N	G	5	Shoe factory - tenant.
12	F	P	P	F	2	Claims no outside employment. Has a one acre thrifty apple orchard. Has cut pulpwood off farm.
14	P	N	N	P	2	Relief case. May now have old age pension.
15	P	N	N	P	2	B. & O. shops.
17	F	F	F	P	5	W.P.A.
18	P	N	N	P	6	W.P.A.
16	G	F	F	F	7	Father and son operate gas station in Chilli- cothe. Buy feed to fatten a few hogs.
3	P	N	P	F	7	Produces raspberries and peaches for sale. Son works in shoe factory. Family has had some contact with relief office.
8	P	P	P	P	4	B. & O. shops.
11	G	P	P	G	4	Father B. & O. shops. Son school teacher.
13	P	P	P	P	2	Very low standard of living - occasional relief. Two cattle are yoke of oxen. Occasional re- lief. Now old enough for old age pension.
19	F	F	F	F	2	Paper mill. Farms between shifts.
10	G	G	F	G	2	Farmer. A little valley land. Improvements indicate some outside income.

Table 24 (cont.)

## AREA V

Schedule No.	Crop acres	Total acres	Garden	Grain produced (bu.)	Hay produced (tons)	Livestock units kept or produced					Total units
						Horses	Cows	Other cattle	Hogs	Poultry	
2	0	4	G	0	0	0	0	0	0	.30	.30
11	0	7	O	0	0	0	0	0	0	0	0
18	0	1	F	0	0	0	0	0	.30	0	.30
19	0	1	F	0	0	0	0	0	.35	0	.35
4	1	61	F	25	0	0	2	0	.60	.30	2.90
17	1	3	F	45	0	0	0	0	.40	.25	.65
12	3	89	F	50	1	0	1	0	1.50	.30	2.80
9	6	80	G	270	0	2	5	4	.60	.50	12.10
13	6	33	F	105	3	1	1	0	.70	.25	2.95
3	8	168	F	180	0	2	1	0	.30	.20	3.50
5	9	70	F	0	4	1	1	0	1.50	.15	3.50
16	9	48	F	135	0	2.5	0	0	0	0	2.50
8	10	80	G	280	4.5	2	2	0	1.40	.40	5.80
14	10	60	F	275	0	0	0	5	0	.25	5.25
15	13	60	F	118	2	0	0	0	0	.20	.20
6	26	76	G	580	12	3	5	0	.50	1.00	9.50
1	30	130	G	200	7.50	3	4	1	.60	.50	9.10
10	42	160	G	1000	24.00	4	4	3	5.00	.50	14.50
7	47	300	F	875	0	4	5	10	8.80	.40	28.20

Sched- ule No.	Condition of buildings			Sani- ta- tion	Size of house- hold	Occupational and Income Information
	House	Barn	Other Bldgs.			
2	F	N	P	G	2	Country blacksmith.
11	P	N	P	F	2	Old age pension.
18	P	N	N	F	4	W.P.A. Son expecting employment by N.Y.A.
19	F	N	N	F	4	Day laborer.
4	F	P	P	G	2	Deserted wife and son. Does laundering. Has been on relief & wants on again. In want.
17	F	N	F	G	4	Paper mill.
12	P	P	P	P	7	W.P.A.
9	F	P	P	F	5	Tenant farmer. Son works part-time at stock sales.
13	F	P	P	G	5	B. & O. shops.
3	P	P	P	P	3	W.P.A. Is occupying home place only until father's estate is settled. Expects to live then in 8X12 shack.
5	F	P	P	F	2	W.P.A.
16	F	P	P	F	1	Land lot to croppers. Aged sick owner supported by children or savings.
8	F	F	F	G	3	Part-time farm laborer and farm operator.
14	G	F	F	G	1	Railroad pension. Hires farm work done. Amateur farmer.
15	P	P	P	G	2	W.P.A. Land lot to cropper.
6	G	P	G	G	2	Farmer. Is improving this place with money from sale of larger farm.
1	G	P	F	G	3	Farmer.
10	F	F	P	G	5	Farmer. Son part-time farm laborer.
7	P	F	P	F	2	Tenant farmer with F.S.A. loan.

### Some Final Impressions

The study of five hill areas in Ross County has been discussed and summarized by topics, all interrelated it is true; but at no place so far has the combined influence of all circumstances been summed up and stated as a final impression in respect to the practical application of an action program to the diverse situations which exist.

An action program applicable to the hill land areas would at least include the following items: (1) lime; (2) fertilizer; (3) erosion control; (4) forest management; (5) reforestation; (6) home gardens. A most serious question is: what combination of the above items (or others) can be wisely applied to each land holding? E.g., should a land owner in Area II be encouraged to lime and fertilize a large amount of pasture or attempt to improve a large acreage of crop land? Questions such as the foregoing are matters of policy which fall outside the scope of this report, which cannot presume to state the scope of responsibility various agencies may be able to assume. On the other hand, it is relevant to enumerate some final impressions as to the limits of opportunity which these areas possess.

Part of Area I has been classified by the County Land Use Planning Committee as agricultural land on which some distinct problems exist. This agricultural land now supports a number of farms giving full-time employment to one or more men and a few smaller farms giving a substantial amount of part-time employment. In respect to the future use of this land, all this study can presume to do is to verify the existence of the problems already recognized by the leaders in the county and by the better farmers in the area: namely, the need for lime, better crop rotations, including more legumes, and better erosion control on the more rolling plateau lands and drainage improvement on the level portions. To this can be added the observation that pasture improvement and the maintenance of relatively more pasture and hay consuming animal units and relatively fewer hogs would be conducive to better soil maintenance. The foregoing does not involve any radical shift in land use, but merely the more rapid adoption of soil building and conserving practices. Experience in pasture improvement work in this area may demonstrate that it is practical to lime and fertilize some relatively poor pasture but this should be done after the better pasture land has been improved and the results demonstrated.

Farms in Areas IV and V which have 20 or more acres of bottom land for crops usually have enough hill land available for pasture to supplement the crop land and thereby supply nearly full-time employment to a farmer. This pasture acreage needs lime and fertilizer badly. With the above exception, farming experience in Areas II to V must lead to the general conclusion that most of the land is not adapted to agricultural use beyond the scope of production for home use to supplement other sources of income. The land's capacity to supply employment must be associated for the most part with the development of forests and the harvesting and processing of forest products. If we accept the premise that the present pattern of land ownership is to be maintained, the logical development on each land holding would be a relatively large acreage of woodland maintained on a sustained yield basis to supply cash

income and a small acreage in crops for subsistence purposes. In numerous instances some outside employment would be necessary just as at present to obtain additional cash income. But the important point is that the entire situation under the above mentioned set-up would be definitely headed toward improvement in respect to both employment opportunity and land use.

Goals in subsistence farming.- It is a matter of observation that when individual farmers in these non-agricultural areas attempt to cultivate sufficient land to give full-time employment the results are usually unsatisfactory: borrowed money is used up; less than standard wages are obtained for labor; the standard of living is low; discouragement saps ambition; sufficient expenditures are not made to maintain the soil. It is apparent that continued aid would be necessary to maintain agricultural production on such land. Production for home use only is in a little different category: little cash or equipment is involved; production is by labor in spare time or by the family; because the products are used at home it might be argued that their value to the family is greater than if they were sold in the market; the products are the result of much labor and little land. The final point particularly can be expanded to justify some subsidization, when necessary, to encourage the development of home gardens and a small amount of pasture and crop land. The necessary outlay of public money to secure lime and fertilizer would be small for each family compared with the benefit; providing the family would put forth the necessary effort to grow a good garden.

It is a controversial question whether the development of subsistence farming should be encouraged through subsidization much above the point of gardening unless enough fair or good land is available to supply a man nearly full-time employment. The reasons for this apprehension are: (1) the maintenance of a team and satisfactory equipment cause the overhead costs to be high; or if these are not maintained slipshod methods cut crop yields; (2) the amount of subsidization which would be necessary to establish subsistence farming on each land holding would be several fold that necessary to establish a good garden. Present indications are that continued aid would be necessary to maintain each farm unit; (3) many land holdings have too little suitable land available to establish a satisfactory subsistence farm. I.e., a minimum of about 20 acres of crop land and the additional pasture land.

It is a fact of some importance that on a number of holdings one or two cows are summered on the available pasture and the winter's supply of food is purchased or exchanged for labor on other farms. This plan eliminates the expense of maintaining a team and farming equipment which may exceed the expense of food purchases for the cows.

Therefore, from observation of existing conditions it appears that: (1) aid for the establishment of forestry is sound because the land is best adapted to that use; (2) gardens offer the best agricultural opportunity because the labor expended and the benefits realized are large relative to the amount of land used or capital required; (3) next to gardens, the best opportunity for aid would be the establishment of a small acreage of good pasture, because this does not require the maintenance of equipment on each farm, erosion is retarded, and the benefits

received from good pasture would be higher relative to the capital and labor requirements than an equal expenditure on crop land.

The above statements are not intended to be a conclusive argument against maintaining a small crop acreage on some land holdings where the land is suitable and the resources of the occupant enable him to continue farming. But it is to be emphasized that the chances for success of such operations are so poor that it is questionable policy to spend public money to encourage their expansion.

If it is deemed desirable public policy to encourage the expansion of subsistence farming on poor land, a few farms could be selected and developed as demonstration farms upon which the cost to the public of reclamation and maintenance over a period of years could be measured; also, the ultimate success from the viewpoint of the farm operator would thereby be demonstrated.

The fact should be recognized that an occasional individual in any area may be successful with some specialty such as poultry, small fruits, etc., or by developing some special product or service. Such efforts can very well be encouraged; but no evidence points out any general opportunity for the development of special crops or unique ways to make a living which could be adopted by entire communities.

It is possible that a conservation program might increase the supply of game and fur bearing animals in these areas. Originally, an important part of the food supply came from the woods. How important game and fur could become is problematical but worthy of consideration as a supplementary source of income. In this connection the wild life in some wooded areas may be limited by the infrequent and unreliable water supply, a deficiency which could be remedied by the construction of frequent small dams and catch basins in the ravines and hollows. It is suggested that the entire wild life situation be given an expert appraisal to determine the possibilities for its future development.

A final word in respect to attitudes: in order to bridge the gap between the present status of people's thinking and an active demand on their part for the things an action program might do, it is necessary to recognize the background of their experience. The culture pattern in these areas is an admixture of pioneer agriculture, corn belt agriculture, and machinery age industry. In the first place, the methods of land use, the indifference toward conservation of timber and soil, the impulse to clear land, the methods of livestock management, some of the habits of living and an individualistic attitude are pretty largely a carry-over from pioneering days. In the second place, hill farmers tend to adopt the practices and types of farming which are successful on adjacent level lands but not suited to the hills. In the third place, such a large proportion of the hill people have been employed in industry that their attitudes and desires are urban rather than rural. The admixture of these varies with families and communities and, it is suggested, may affect the rapidity with which an action program can be put in operation in various communities and most important of all the type of program which will be acceptable and practical. Experimentation and demonstration on a slowly expanding scale probably is the only way to determine the sound course of program development.

